



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

1910

# PRELIMINARY REPORT

ON

## The Fire Department

---

THE CHICAGO COMMISSION  
ON  
CITY EXPENDITURES  
1910



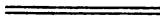
TH  
9505  
.C404  
1910

# PRELIMINARY REPORT

ON



## The Fire Department



THE CHICAGO COMMISSION  
ON  
CITY EXPENDITURES

1910

Digitized by Google

20

JOHN F. HIGGINS, PRINT  878-286 MONROE STREET

*To the Honorable Mayor and City Council of the City of Chicago:*

SIRs—By an ordinance of June 21st, 1909, the Chicago Commission on City Expenditures was created to inquire into the expenditures of the City of Chicago and to report to the Mayor and the City Council.

In compliance with this ordinance, your Commission has inquired into the business procedure of the Fire Department as affecting the expenditures thereof, and begs to submit herewith a preliminary report of its findings, together with constructive suggestions.

Respectfully submitted,

C. E. MERRIAM,  
*Chairman.*

---

## REPORT ON THE BUSINESS PROCEDURE OF THE FIRE DEPARTMENT AS AFFECTING THE EX- PENDITURES THEREOF.

In making this investigation of the Fire Department, no attempt has been made to pass upon the fire-fighting methods. Our investigators have confined their efforts to an examination of the transactions relative to expenditures of the City's money. In order that a clear understanding may be conveyed as to the exact scope of the inquiry, this report is made in two parts, with subject heads under each part, as follows:

### *Part I.*

1. Purchase of Hay.
2. Purchase of Hose.
3. Purchase of Fireboats.
4. Purchase of Lumber.
5. Purchase of Horses.
6. Accounting for Horses.
7. Horseshoeing.
8. Repair Shop Records.

## 9. Fire Attorney's Office.

## 10. Miscellaneous Findings and Suggestions.

*Part II.*

## Purchases of Coal.

## PART I.

## PURCHASES OF HAY.

An examination of the method of purchasing hay used by the Fire Department shows that the City has long been paying a high price for an inferior grade of hay, and that an extraordinarily large quantity has been paid for in proportion to the quantity which should have been used. The matter may best be discussed under:

1. Improper Specifications.
2. Inferior Hay Furnished.
3. Large Quantity Paid For.
4. Insufficient Checking of Weights.

*Improper Specifications:*

The department has purchased all hay for over twenty years from the same man, John O'Hern, notwithstanding bids have been advertised for and the contracts awarded to the lowest bidder. One year another man, Robert McCarthy, got the contract but defaulted to O'Hern, and O'Hern admits that he paid something to McCarthy. This is sufficient reason to inquire into the nature of the specifications which have been used. They read as follows:

"All hay delivered shall be of the best quality of upland prairie hay, free from chaff and stick, well cured and not bleached by exposure to rain or dew."

Both loose and baled hay are specified in the advertisements and contracts. Most of the large hay firms of the City were interviewed by our investigators and united in saying that it is impossible to obtain in the City of Chicago loose prairie hay of the high grade specified sufficient to meet the Department's needs, and that the use of the words "loose hay" precludes them from bidding, and they will not bid so long as present conditions exist. The Department has been paying a higher price each year for loose hay than for baled, notwithstanding the fact that the latter takes up less room, and would therefore be preferable.

No record could be found showing names of bidders or amounts bid prior to 1902, but since that time a bid has been submitted each year by a Henry Smith, and in 1906, 1908 and 1909 he was O'Hern's only competitor, and in the other years there was only one other competitor aside from Smith. The latter's bid always read: "For the whole City," as distinguished from O'Hern's separate bid for each section of the City, and was usually about fifty cents a ton higher than O'Hern's bid. Smith has no place of business, as far as our investigators could discover, nor even letterheads for use in submitting his bids. In view of these facts, Smith's tenacity in bidding each year, notwithstanding his lack of success, would seem sufficiently strange to have caused before this an inquiry by the Department and an endeavor to change conditions so that more bids might be secured.

The specifications for hay should be revised to accord with that which can actually be bought in the market. While it is undoubtedly true that prairie hay is the best for Fire Department horses, it is recommended that the specifications call for "No. 1" prairie, instead of "choice" prairie, because there is a comparatively small quantity of the latter received in Chicago, and the probability is that No. 1 would be the best actually delivered, even though the specifications called for "choice," and the department would continue in the same unfortunate position as heretofore, i. e., paying for a higher grade hay than it receives.

#### *Inferior Hay Furnished:*

When the City advertises for bids on a certain high grade of hay, dealers naturally believe that they must deliver hay in conformity with the specifications, and since this has been practically impossible they do not bid, or if they do their price is based on the hay specified. If, however, they knew that the specifications would not be enforced, and that under the contract they might deliver any kind of hay, they would be more ready to bid and bid low. In point of fact, this is exactly what has happened. The Fire Marshal has advertised for bids on specifications almost impossible of fulfillment, thereby practically shutting out competition, and then, after the contract has been awarded, has not enforced the requirements thereof. This fact is established not only by statements made to our investigators



by firemen in houses throughout the city, but by an examination of the hay found in the fire houses by an expert hay tester, H. R. Whiteside, the official Board of Trade hay inspector. Notwithstanding the statements of firemen that the hay supplied since this investigation began is better than formerly, the findings of the hay expert show that, although he examined the hay in nineteen fire houses, he found none which was up to the contract specifications.

Mr. Whiteside's report is as follows:

CHICAGO COMMISSION ON CITY EXPENDITURES.

REPORT OF HAY INSPECTED.

CHICAGO, Ill., April 2, 1910.

3-30—

Engine House No. 40 and Truck No. 6—

No. 2 Prairie hay, some badly stained. Baled hay.

Engine Houses Nos. 1 and 93—

No. 2 prairie hay, some badly stained and damaged.  
Some no grade, stained, damaged and musty. Baled hay.

Engine House No. 6—

No. 2 mixed hay, weedy and stained. Bulk hay.

Engine House No. 25—

No. 2 mixed hay, some stained and damaged. Bulk hay.

Truck No. 14—

No. 3 mixed hay, weeds, sticks and some damaged. Bulk hay.

Engine House No. 15—

Nos. 2 and 3 prairie hay, stained and damaged. Baled hay.

Engine House No. 23—

No. 2 mixed hay, weedy and stained. Bulk hay.

Engine House No. 12 and Truck No. 6—

No. 2 mixed hay, weedy and some stained. Bulk hay.

Engine House No. 7—

No. 2 mixed hay, weedy and stained. Bulk hay.

3-31—

Engine House No. 107—

No. 2 prairie, very brown, mixed. Baled hay.

Truck No. 12—

Nos. 2 and 3 prairie, stained and damaged. Some no grade, stained, damaged and musty. Baled hay.

Engine House No. 34—

No. 2 mixed hay, weedy and sticks, some stained. Bulk hay.

Engine House No. 17—

No. 2 prairie hay, stained, some damaged. Bulk hay.

**Truck No. 2—**

No grade prairie, badly stained, damp and heating.  
Baled hay.

**Engine House No. 13—**

No. 2 prairie, stained. Baled hay.

**Engine House No. 32 and Truck No. 9—**

No grade prairie hay, damp and heating. Baled hay.

**Engine House No. 104 and Truck No. 31—**

No. 2 prairie hay, bleached and some damaged. Baled hay.

**Hospital in rear of Engine House No. 104—**

No. 3 prairie hay, badly browned, chaffy and stained.  
Baled hay.

**Engine House No. 8—**

No. 3 prairie hay, bleached and stained and some damaged. Baled hay.

(Signed) H. R. WHITESIDE,  
*Official Hay Inspector.*

These findings, which were called to the attention of the Fire Marshal should have been sufficient grounds for having cancelled the present contract. It is apparent that even a rigid inspection would not compel the present contractor to deliver hay as per specifications, since they are practically impossible of fulfillment, and even if the required grade of hay could be obtained it would be worth more per ton than the contract price, and it is a self-evident fact that the contractor will not deliver hay throughout the year at a loss.

Inspection should hereafter be made by a competent hay inspector, for as a rule firemen are not judges of hay. It is important, however, that the right kind of a man be secured as inspector, for the opportunities of the office admit not only of so harassing a contractor as to cause him to lose money on his contract, and thereby discourage future competition, but also so favoring a contractor as to enable him to make large profits thereon. This holds true with respect to the purchase of all forage in all departments.

***Large Quantity Paid For:***

The Department Veterinary, who is responsible for the physical condition of the horses, has stated that he believes each fire horse should be fed from 10 to 14 pounds of hay per day, and that 5 to 10 pounds of hay or straw per day should be used for bedding. This makes an aggregate of 15 to 24 pounds per horse

per day. During 1909 the department paid for 6,106,265 pounds of hay. The number of horses varied from 705 to 737, which means that the department purchased from 22.7 to 23.7 pounds of hay per horse per day, or the maximum allowance throughout the entire year.

The New York Fire Department, which may be cited as a representative fire department, requested in the 1910 budget enough hay to allow 11.6 pounds per horse per day. An average of the Chicago department veterinary's estimate of from 10 to 14 pounds would be 12 pounds, or practically the same as is fed horses in New York. Had the local department confined itself to this amount, a saving of nearly \$4,000 a year would have been effected, and instead of a maximum of 10 pounds of hay being used for bedding, if an average of the veterinary's estimate, or 8 pounds, had been used (which is a liberal allowance, notwithstanding the fact that at least half of the stalls are of the old, unsanitary type) an additional \$3,000 to \$4,000 might have been saved yearly. Moreover, if straw instead of hay had been used, a further saving of from \$3,000 to \$5,000 per year would have been made. In short, if there had been supervision of hay consumption such as is exercised daily by private corporations, a saving on the purchases of hay alone would have been effected amounting to \$10,000 to \$13,000 yearly, enough to have purchased two new, modern fire engines each year.

#### *Insufficient Checking of Weights:*

The Fire Marshal has testified that he did not know where the hay was weighed. With three exceptions, all hay delivered to the 151 fire companies in the city has been weighed on one set of scales, located at Western and Ogden avenues. Although the weights at this place have been checked by a man from Truck No. 12 nearby (usually the same man), the opportunities offered after the hay is weighed for transferring a few bales off from loads to other wagons or other customers seems sufficiently inviting to have caused the Fire Marshal to take action toward protecting the city's interests also in this respect. The three exceptions where hay is not weighed at the above address are South Chicago, Hegewisch and Kensington.

It is suggested that contractors be compelled to weigh their hay on scales as near the point of delivery as possible, or at

least in the same division of the city (north, south or west), and that a man be sent from the company to which the hay is billed who shall check the weights and count the bales, and that the officers of the respective companies change the men so detailed from time to time.

#### PURCHASE OF HOSE.

The subject of hose purchasing may be grouped under:

1. Lack of Specifications.
2. Favoritism in Buying.
3. Other Unbusinesslike Practices.

#### *Lack of Specifications:*

It has long been the custom of the department to advertise in a general way as to size, etc., without any definite specifications as to cotton fabric, percentage of rubber in lining, material in couplings, weight, flexibility, etc. The only contract description of hose purchased is by brand. The same quality of hose is often put on the market under several different brands. Sometimes the same hose is sold in different cities under different brands. A large percentage of the hose purchased by the local department has been bought from jobbers, who have their own brand placed on the hose. The result is that the different brands have very little significance.

It has been claimed that so long as the hose dealers were willing to replace all hose found defective within a reasonable period the city was amply protected. The fallacy of this argument is evident, as defective hose might not be discovered until in actual use at a serious fire, and then the replacement clause in the contract would be of very minor importance. The National Board of Fire Underwriters have made a careful study of fire hose, and have formulated some standard specifications for the construction of hose for fire department use. These specifications are recommended by the National Fire Protection Association. The laboratory of the National Board is located here in Chicago. Until recently (since the creation of your Commission), no laboratory tests of hose were ever made by the local Fire Department. In December, 1909, however, several brands of hose were sent to the Underwriters' Laboratory for testing. The reports of the tests showed that in many ways

not one of the ten brands was up to the standard specifications above referred to. Not only were the samples not up to these specifications, but in many instances these test reports showed that they fell so far below as to convince even a layman that it was not proper hose for use by a fire department. For example, the following excerpts are taken from reports at random:

Hydrostatic pressure test of coupling attachment: At 10 pounds, leakage past the tail pieces of both couplings developed, amounting to a slow dropping. Leakage gradually increased to a continuous stream at 150 pressure, the volume of water becoming greater at 300 pounds, when the hose pulled out of the female coupling. Hose pulled out of both couplings 3/16 to 1/4 inch at 250 pounds' pressure.

The Fire Marshal says his hose should stand a pressure of at least 300 pounds.

It was afterwards found that no washers were used between the expansion rings and tail pieces, the ends of the hose extending in past the expansion rings. The leakage and sweating noted in the above test was undoubtedly due to this omission. The hose was cut off squarely and was installed in the couplings without much doubling back of the outer fabric. No injury to the fabric was noted as a result of attaching the couplings, but the rubber lining at the male coupling was cut part way through at two points at the edge of the expansion ring. The ring in the female coupling was not expanded sufficiently to render this coupling secure at pressures in excess of 300 pounds.

The city evidently has been content to buy hose on the theory recently voiced by the Fire Marshal that "the man who makes the hose should know more about it than the man in the laboratory." The fact that manufacturers are all in the business to make a profit, and as large a one as possible, seems not to have been considered.

While this Commission is not prepared to say that the standard specifications of the National Board used for comparison should be adopted by the local department, yet it seems highly desirable that some specifications should be adopted calling for just as high a grade of hose as the Fire Marshal believes the city ought to have. Having decided upon specifications, the Department should then see to it that manufacturers entering into contracts to supply such hose actually do so. This can be done by having tests made at the National Board of Underwrit-

ers' Laboratory on delivery of the hose. While the city has had no hose specifications of its own to use as a basis for test comparisons, the value of laboratory tests is illustrated by those recently made. For example, the Chicago Fire Hose Company, in their last proposal, agreed to furnish the best Sea Island cotton and Para rubber, but the test showed that it was not Sea Island cotton and the rubber was of an inferior grade.

The argument is advanced that a combine of hose manufacturers exists, and that they have refused to bid on the standard specifications. A movement has been started by the United States District Attorney, as a result of the investigation of your Commission, with the intent of breaking up such a combine, if it exists. If these efforts meet with success, the Chicago Fire Marshal should be ready with specifications. At any rate, an active endeavor on the part of the local department to frame specifications and secure bids thereon would be more commendable than the apathy which has thus far existed.

#### *Favoritism in Buying:*

During the past four years, i. e., 1906, 1907, 1908 and 1909, the department purchased 220,500 feet of fire hose. Of this amount 128,500 feet, or 58 per cent., was purchased from four firms, as follows:

Chicago Fire Hose Company, 58,500 feet, or 26.5 per cent.

New York Belting and Packing Company, 28,500 feet, or 12.9 per cent.

Manhattan Rubber Manufacturing Company, 21,500 feet, or 9.75 per cent.

Chicago Fire Appliance Company, 20,000 feet, or 9.07 per cent.

The remaining 92,000 feet, or 42 per cent., was purchased from seventeen other companies. If the hose supplied by the four companies above named was the best, the question naturally arises, Why was not the other 92,000 feet also purchased from them instead of being distributed among seventeen other competitors? It is established that the large amounts were not purchased from the four favored companies because they were the lowest bidders, for at each letting there were many bids lower on each size of hose. Moreover, two of these firms—the Chicago Fire Hose Company and the Chicago Fire Appliance

Company—although they sold the city 78,500 feet, or 35½ per cent of all hose purchased during the four years, are only local brokers and have never manufactured one foot of hose. The president and secretary of the former company is Robert Many, who, according to testimony before your Commission, has been a personal friend of successive fire marshals for many years. The officers of the Chicago Fire Appliance Company are Harry A. Smith, president, and James P. Connery, secretary.

At the recent laboratory test, the hose supplied by the Chicago Fire Appliance Company was found to be the most inferior of all hose tested. Moreover, this company seems to have enjoyed favors not extended to other companies. For instance, their contracts in 1906 and 1908 provided for only a three-year guaranty, whereas all the contracts made with other firms during these years provided for a guaranty of from four to six years. Also, in 1909, the contracts with this company provided for only a 300-pound guaranteed pressure, whereas all contracts with other companies in 1909 provided for a 400-pound pressure.

The Manhattan Rubber Manufacturing Company, although not brokers, have been supplying the city with very inferior hose. Of 15,000 feet returned to all companies as defective during the four years under investigation, 8,950 feet, or 60 per cent, was returned to this one company; and yet the Department has continued year after year to buy their hose.

#### *Other Unbusinesslike Practices:*

The entire matter of hose contracts seems to have been handled by the department in a very loose manner. No investigations have been made as to the commercial standing of the bidders. Inasmuch as the guaranty features of the contracts are very important, it is suggested that when bids are filed by brokers who are not direct agents of the manufacturers, the bid should be accompanied by the manufacturer's guaranty. A still better protection would be to require from each contractor a suitable bond.

Advertisements have specified that bids would be received until a certain date and hour, yet neither the date nor hour of receipt has ever been placed on bids. An opportunity has thus been afforded for manipulation of bids which should have been guarded against.

In 1906 the guaranteed period during which hose might be returned as provided in the contracts was four years, with the exception of the Connery contract, which was three years. The contracts dated April 22, 1907, and September 21, 1907, however, under which 90,000 feet of hose were purchased, limited the guaranty period to thirty days from date of delivery. As no tests were made and very little, if any, of the hose was used within thirty days, the otherwise valuable guaranty clause afforded the city no legal protection.

In 1908, with the exception of the Fire Appliance contract, which was three years, the guaranty period in contracts with all dealers was four to six years; but in 1909 the period was reduced to three years on all contracts.

#### FIRE BOATS.

The Manitowoc Dry Dock Company was directed, in 1906, by the Fire Marshal, to prepare plans and specifications for two new fire boats, which it did. Bids were opened October 23, 1906. A protest was lodged with Mayor Dunne that the bids were irregular, on account of the fact that other shipbuilders refused to bid to plans and specifications gotten up by one of their own number, who was an interested party in the bidding. By order of the Mayor, the City Council investigated the alleged irregularity and directed the Fire Marshal to disregard the Manitowoc Company's plans and engage a naval architect to prepare new plans and specifications and inspect the construction of the boats. A naval architect named Babcock, of New York, was engaged, new plans and specifications were drafted and new bids asked. There were three bidders, and the Manitowoc firm secured the contract.

There has been considerable adverse criticism from various sources since that time regarding the specifications, contract, and the boats themselves; and in order that justice might be done both to the Fire Marshal and taxpayers of the city, your Commission secured the services of a disinterested marine architect to make a careful survey of both boats. His report is as follows:

CLEVELAND, O., March 31, 1910.

*Chicago Commission on City Expenditures, 207 City Hall, Chicago, Ill.:*

GENTLEMEN—In accordance with your instructions, I



made a survey of the fire boats "Graeme Stewart" and "Joseph Medill," recently constructed by the Manitowoc Dry Dock Company for the Chicago Fire Department, and now beg to report as follows:

\* \* \* \* \*

As far as possible, I made a careful and thorough examination of everything in the construction and on board the boats, and compared same with the drawings and specifications, measuring the thickness and size of plates and shapes, the size and spacing of rivets, the construction of the boilers, the condition of machinery, the layout of piping and valves, etc., and the quality of the work in general; and I found everything to be in conformity with the plans and specifications, with the following exceptions:

- (1) There are no braces to the plate bulwarks forward. These are specified to be fitted of 1½-inch round iron, spaced about 3 feet 6 inches apart, and in my opinion they ought to be fitted.
- (2) The guards over engine-room skylight are specified to be of brass, but they are fitted of iron; however, as they would be painted in either case and iron is equally strong, there is nothing to be gained by changing them.
- (3) There is no cement in the narrow spaces in the fantail. This should have been done to prevent water lodging there.
- (4) Iron handrails are specified to be fitted on ladders leading to workshop. This has not been done.
- (5) The specification calls for four (4) brass-framed side-lights in deckhouse, but there are only two, and in fact this is all that can be gotten in; and as an offset to this, the builders fitted one extra steam bilge syphon in boiler room, not specified.
- (6) The specification calls for "Williamson" type of steering engine, but it is the "Elmes" type in the boat. The former was originally in the boat, and I am told that at the request of the crew, who wanted a quicker-acting machine, the builders made the change at their own expense.
- (7) There is one angle in upper side keels on each side of boat in forepeak that has no strap over the butt, as provided for in specification.
- (8) The bulwarks have been cut down from a point just forward of the hose room to aft, and from 36 inches to 24 inches high; but the original plans called for 36 inches, and they were so fitted.
- (9) The insulating of the steam pipes in boiler space with magnesia and canvas is a very poor job and ought to be gone over and made good by contractors.

The above are all the deviations from the contract, plans

and specifications that I could find, and excepting item 1 they are not very serious; and otherwise the boats are well built and equipped in all respects and the workmanship is good.

Respectfully submitted,

(Signed) ROBERT LOGAN,  
*Surveyor.*

The facts, however, appear to show that criticisms to the effect that the boats are not well built are not well founded. Aside from an evident lack of sufficient business perspicacity on the part of the Department to have prevented most of the criticism referred to in this section, and also to make a pre-arrangement as to coal used during the interim between the delivery and acceptance of the boats, the liability for which is denied by both parties to the contract, as already explained under the section of this report entitled "The Purchase of Coal," it would have been considered as a matter of good business, in view of the fact that so much notoriety had already attached to this matter, had the Fire Marshal, prior to putting the boats into actual service, had an inspection of the boats made by a disinterested expert as to fulfillment of the contract. Such an inspection would not have cost over \$150 at the most.

#### PURCHASE OF LUMBER.

The repairing of over 100 engines and truck houses entails the purchase of large quantities of lumber each year. This lumber is purchased under annual contracts, an examination of which shows that certain recommendations made in a report by your Commission, under date of December 18, 1909, relative to purchase of lumber by the Department of Public Works, are also applicable to the Fire Department. For example:

We further recommend that the rules for grading indicated in the specifications should be such rules as are now currently used as standards for grading in the lumber trade.

Also the following as to period of time covered by lumber contracts:

As the price of lumber fluctuates considerably in a year, and it seems difficult to make accurate specifications for so long a period of time, your Commission recommends that the contracts for lumber be made to cover a shorter period of time, say three months, and that provision be made for a reasonable extension of the contract.

Looking toward a reorganization of the Purchasing Agent's

office, the following excerpt from the report above mentioned is also made a part of this report:

Your Commission further recommends that each bureau make its own estimate of lumber required, and that these various estimates of all the bureaus of the Department of Public Works, and any other department which may secure lumber through contract, be combined into specifications including all the various kinds and qualities of lumber required. This would not necessarily result in one general contract, since one bidder might be low on oak, while another might be low on pine or hemlock. The contracts should be so awarded that the city would get the lumber specified at the lowest possible price, which might involve several contracts in the year 1910, just as more than one contract was made in some of the bureaus in 1909. It would, however, secure the benefit of the lower prices which should be secured for the larger quantities purchased under consolidated specifications.

It is also important that proper stock ledgers showing receipts and deliveries of lumber be installed at Engine Companies Nos. 34 and 14, which should be under control from the central office. The stock record books at present maintained at these houses are defective, in that they do not properly serve the purpose for which they were intended and are not under control.

#### PURCHASE OF HORSES.

While it is true that since the incumbency of the present veterinary of the department the grade of horses purchased has been much higher than in former years, the present method of buying and paying for horses seems to admit of further improvement and still insure to the city the same high grade of horses.

One of the leading horse dealers, who has done much business with the Department, recently testified before your Commission that for horses furnished during 1908 he was compelled to wait so long for his money that the interest thereon amounted to \$6 per horse. He stated that if the Department would make arrangements with the Comptroller to pay for their horses within thirty days from date of purchase, he could afford to sell them \$5 per horse cheaper. This feature alone would mean a saving of over \$500 per year, and the Comptroller has stated that he is willing and anxious to co-operate with any and all department heads on such matters. The facts with regard to

the date of purchase, time of payment, and the length of time the bills have been held in the Fire Department, and the vouchers in the Comptroller's office are shown on the table attached hereto.

An examination of the records showing the names of horse dealers with whom the city has done business seems to indicate that different dealers are favored by different administrations. Of the 111 horses purchased during 1909, all but three were purchased from two firms; 50 from one firm and 58 from the other.

Interviews with other horse dealers bring out the fact that all are ready and willing to sell horses to the city. It is an open question whether fire horses, like most of the supplies, material and equipment used by the City, should not be bought on specifications, which would be advertised, bids solicited thereon, and contracts let to the lowest bidder. The Department might reserve the right to take a certain number of horses, "more or less," a minimum number, however, being specified, for the protection of the dealer. A reasonable time for delivery should, of course, be allowed. Some of the larger cities have bought fire horses successfully on specifications, and it is suggested that a fair trial thereof be made in buying horses for the local Department.

#### ACCOUNTING FOR HORSES.

The Fire Department owns approximately 740 horses, representing an outlay of about \$200,000. The prices now being paid range from \$270 to \$300. The records with respect to the number of horses have been so defective that, until they were checked up by our investigators, the department has never been certain as to the exact number of horses it actually owned. The officers of each company knew, of course, the number of horses attached to their respective companies; but prior to 1908 no reports were ever made by the officers regarding horses; but during that year there was inaugurated a system of reports to be made each time a horse was transferred, showing the card number of the horse and the company to which the transfer was made. A report was also to be made at the end of each month showing the numbers of the horses in each house.

Instead of maintaining a permanent record in the central office, to which these reports would be checked to determine

whether all the horses were accounted for and the reports then filed, they were turned over to the veterinary, who took them home and used them as a sort of reference memorandum. The reports of the current month were not even checked to the reports of the previous month. There was no checking of any kind. The reports were not even retained, but were destroyed each month.

This so-called system of keeping horse records provided that a card be made out in duplicate by the Department Veterinary when a horse was purchased, showing date of purchase, price paid, from whom purchased, and the marks. One of the duplicate cards was supposed to follow the horse, i. e., either fastened on the stall or kept on the desk of the company officer where the horse was located. The other card was to be forwarded to the central office, that the information contained thereon might be entered by the Secretary in his horse-record book and the card filed. When a horse died, was sold or killed, the veterinary was supposed to notify the secretary and send him the outside card, in order that a proper entry might be made in the book and the card removed from the active files.

No entry was ever made in the book, however, to show in what company a horse was placed after purchase, or when and to what company the horse was subsequently transferred, or to what company a horse was attached when it died, was killed or sold. It was impossible to learn from this record even the total number of horses attached to any of the 151 companies. Under such conditions it would have been comparatively easy for horses to be sold or given away and the outside card destroyed; yet the central office's records would continue to show year after year that the horse was still in service.

When the secretary received a card on which was marked the word "Died" or "Killed," and the date thereof, he proceeded to check the horse off according to his book, notwithstanding that there was no signed statement submitted by either a company officer or the veterinary as to the company to which the horse was attached when it died. It might have been given away or sold and the proceeds retained by individuals, but nevertheless, if the cards were marked "Died" or "Killed," it would have been scratched off the central office book. It was

thus impossible to compute from this book even the total number of horses actually in the Department, and if horses were to disappear, as herein suggested, there was no way of fixing responsibility, since the entries in the book were supported by nothing but unsigned cards.

Our investigators checked the cards in the central office files to the entries in the book showing horses supposed to be in the department January 31, 1910, and it was found:

1. That 12 cards were missing.
2. That 8 cards were in the file for horses which the book showed as having died, been sold or killed.

The reports from the several companies dated January 31, 1910, showing the number of horses in each house at that date were then checked to the list of horses supposed to be in the department according to this book, and it was found:

1. That horse No. 1951 was reported by Truck No. 4, although the book showed it was killed in 1908.
2. That horse No. 1727 was reported by Truck No. 27, although the book showed it was sold in 1907.
3. That Engine No. 14 and Hospital No. 104 each had a horse bearing card No. 1946.
4. That Engines Nos. 10 and 109 each had a horse bearing card No. 1949.
5. That Engine No. 104 and Truck No. 9 each had a horse bearing card No. 2008.
6. That horse No. 1517 died December 4, 1909, and horse No. 1929 died December 3, 1909, but the fact of their demise was not chronicled in the horse-record book.
7. That 16 horses shown by this book to be in the Department were not reported at all.

It is suggested that immediate steps be taken to provide a record in the central office which shall show at all times the location of each horse in the Department, together with other necessary history pertaining thereto, and that all entries made in the book be supported by permanent files of documents.

#### HORSESHOEING.

The cost of shoeing Fire Department horses ranges from \$27,000 to \$28,000 per year. Under an agreement with the horseshoers of the City, the Department pays a somewhat higher price for its work than do private corporations and individuals. In return the Department horses are supposed to receive immediate attention when they are taken into a shop instead of being

compelled to await their turn. The principal cause of the increasing cost of shoeing is due, however, to the extensive use of rubber shoes and rubber pads. Rubber shoes cost \$6 and \$7 per set, or twice as much as ordinary shoes (which cost \$3). Rubber pads cost \$4, which, added to the cost of ordinary shoes, also makes a cost of \$7.

Our investigators made a tabulation of the shoeing bills rendered for the first six months of 1909 and computed therefrom the average cost of shoeing per horse per month in each company in the Department. The companies were grouped into seven classes, according to the kind of street pavement in the district covered by each company, as follows:

- Class 1. All hard pavement.
- Class 2. 75 per cent hard to all hard.
- Class 3. 50 per cent hard to 75 per cent hard.
- Class 4. 25 per cent hard to 50 per cent hard.
- Class 5. 10 per cent hard to 25 per cent hard.
- Class 6. Soft to 10 per cent hard.
- Class 7. Soft pavement and unpaved.

It was found that the cost per month in districts having all hard pavement varied from an average of \$2.25 per horse to an average of \$5 and \$6 per horse. While it is true that this wide variance was due partly to the excess of work done by certain companies, it must also be charged partly to a lack of proper supervision of shoeing.

The tabulation showed that some companies used rubber shoes to the exclusion of pads, while with other companies the reverse is true; i. e.,

Engine No. 5 used 99 rubber pads and no rubber shoes.

Engine No. 13 used 102 rubber shoes and no rubber pads.

The Department Veterinary has issued orders that no company may use rubber shoes and pads without his orders; yet of 740 horses he keeps no record showing which he orders shod that way, nor does he notify the auditor in the central office as to what companies or horses are allowed rubber shoes and pads.

Each monthly bill specifies the identification numbers of the horses shod in each company, and the Department requires the shoers to put these numbers on the bills; yet no use is made of this knowledge, because the auditor has nothing with which to

check. The auditor would not know if two, or even half a dozen, different shoers sent in bills on each of which the same horse or horses was specified.

It is suggested that permanent records showing kind of shoes and pads used on the different horses of the different companies, and the frequency thereof, be maintained in the central office, which would serve not only as a basis for auditing shoeing bills, but also might be used for making comparative statements as between the different companies, kind of shoes, frequency of shoeing, etc.

#### REPAIR SHOP RECORDS.

The Department maintains a repair shop, employing from 30 to 40 men, for the purpose of repairing engines, wagons, etc. A considerable amount of new work is also done. Although a large amount of material is used, yet up to the time this investigation began no stock records showing supplies or materials on hand were ever kept or attempted. No inventory was ever taken within the memory of the present superintendent. Our investigators found copper, paints, lead, etc., scattered throughout different parts of the shop. In one place there was a pile of brass estimated to contain at least two tons and worth approximately \$500 per ton. Under such conditions it would be an easy matter to carry away a considerable amount of such material without any one's knowledge and without its loss ever being detected.

The absence of a proper stock record naturally renders impossible the compiling of accurate cost records of either repairs or goods manufactured for stock. It has been customary to bill articles to the several companies at an estimated cost (the same method found in operation in the Water Works Shop). There has been an absence, therefore, of any real basis for comparing cost with prices quoted by private firms.

The Commission is informed that the Comptroller has already inaugurated a new system of accounts for these shops, and economy demands that this movement be carried forward to completion.

#### FIRE ATTORNEY'S OFFICE.

As an auxiliary to the active fire-fighting force of the De-



partment, the Municipal Code provides for a Fire Department Attorney, whose duties shall be to investigate the cause of each fire, the circumstances connected therewith, and to ascertain as accurately as possible the value of the premises, the amount of insurance carried, and any carelessness or criminal intent that may have been instrumental in causing the fire. It is also made his duty to cause the arrest of all persons by him suspected of incendiary intent and to take them before the magistrate for criminal prosecution.

The importance of the prevention of fires is largely lost sight of by the public in the interest which centers in the extinguishing of fires. It is safe to say that should more attention be devoted to the former, there would be less of the latter. A potent aid to the prevention of fires is the detection and arrest of all persons guilty of incendiarism, followed by their active prosecution and conviction.

The reports which have been current for some time that the Fire Attorney's office did but little work and secured but few convictions, together with condemnatory articles published on the Fire Attorney's Bureau in some of the leading fire insurance journals, led your Commission to make an examination of the methods used and results obtained, that the public might be informed as to the real efficiency of this bureau.

Our investigators interviewed the general adjusters of most of the large fire insurance firms doing business in Chicago and also several independent general adjusters, and found they were practically unanimous in expressing their disapproval of the methods used and their dissatisfaction with results obtained. It is very unfortunate for the City that such an evident lack of harmony and co-operation between this Bureau and the insurance companies should exist, as such a condition militates against securing the best results. The 1909 report of the Fire Department shows:

Incendiary fires.....	60
Supposed incendiary.....	133
Unknown .....	2225

---

Total.....2418

Of this number the Fire Attorney's office makes the poor

showing of 13 arrests and 2 sent to the insane asylum as pyromaniacs. In Ohio, where there is less population and lower values, last year 47 men were sent to the penitentiary for arson and 27 to insane asylums, a total of 74. Comparing with the figures of New York City, the conviction for arson in 1908 were 64, against Chicago's 6, and in 1909 New York convicted 22 to Chicago's 2.

To the end that this Bureau may be placed on a better working basis, it is suggested:

First: That it be made, in fact, a real bureau under the Fire Department and called "Bureau of Fire Prevention"; that it consist of a Fire Attorney, who shall be head of the Bureau, a stenographer, and at least five detectives, trained in practical detective work. With a staff of five men, it would be possible to assign three to the north, west and south divisions of the City, respectively, and the other two might be used in all sections on special cases. The officer assigned to inspect combustibles should also be attached to this Bureau. At present the Fire Attorney is carried on the rolls of the Corporation Counsel, and his three detectives are policemen, carried on the rolls of the Police Department and detailed to assist the Fire Attorney.

Second: Necessary action should be taken at once to invest the Fire Attorney with power to subpoena witnesses and administer oaths, and more formality should be attached to the Fire Attorney's hearings. Examinations heretofore seem to have been held in a more or less haphazard and half-hearted manner, and witnesses were free to tell any stories they might fancy, as they were not under oath.

Third: Stenographic notes should be taken of all hearings and permanently filed, together with all reports and documents pertaining thereto, so that a complete history of each case will at all times be available. Although a stenographer at \$1,200 per year has been provided in the budget for the use of the Fire Attorney, yet in the majority of cases either no notes at all have been taken or only brief long-hand notes were made by one of the detectives. In a recent case, in which the hearing extended over a period of three days and which was so important a case that several fire insurance men were present and had their own

stenographer, the Fire Attorney made no effort to have stenographic notes made for his own office.

Fourth: That efforts be made to bring about closer relations between the fire insurance interests and this Bureau.

Fifth: That reports given to the public state with more clearness the results obtained. Heretofore, the reports have been misleading in that they have tended to show a greater number of arrests and convictions for arson than had actually been obtained.

Sixth: That frequent statements be prepared by the Fire Attorney showing the causes of fires, according to the findings of this bureau, which, with proper care and attention on behalf of the citizens, might have been prevented, such as children playing with matches, over-heated stoves, spontaneous combustion, etc.; and that through co-operation with the Board of Education the information contained in these statements be brought to the attention of school children in the City, and also through the Department of Health and the several civic bodies to the attention of Chicago citizens in general.

#### MISCELLANEOUS FINDINGS AND SUGGESTIONS.

Included under the above caption are:

1. Rules and Regulations.
2. Efficiency Markings.
3. Readjustment of Fire Marshal's Duties.

#### *Rules and Regulations:*

Section 851 of the Municipal Code provides that each member of the Fire Department shall be furnished with a copy of the rules and regulations of the Department. Very few members of the Department are in possession of such a copy, and those few which are in existence were published in 1885, twenty-five years ago. The Commission is informed that a revision of the rules has been in progress for a year past. It is very important that this work be pushed forward rapidly to completion, that each man in the Department may be informed as to the rules and regulations which he is expected to observe. That some of the men are not at present familiar with all the rules was brought out in this investigation when a battalion chief, who had used firemen to work on the construction of his private barn,

testified that he did not know he was violating every specific rule of the Department.

### *Efficiency Markings:*

A feature which operates to lower the morale and efficiency of the Department and causes much dissatisfaction among the men is the system of efficiency markings given on promotional examinations. It has been customary to allow from two to four points for efficiency. The present Fire Marshal states that he believes efficiency should count at least half. Your Commission believes that efficiency marks should count much more than they do, provided that efficiency marks are based upon a system of efficiency records built up currently day by day from records kept in each company house. The experience of the Department has been that efficiency statements heretofore rendered by battalion chiefs are, *prima facie*, incorrect. It has often happened that battalion chiefs have either given all men alike the highest possible rating, or they have given all alike an average rating. When such statements are received at the office of the Fire Marshal, unsupported by any efficiency records in the fire houses, the way is at once opened for arbitrary re-rating for different men. Tremendous political pressure is brought to bear at each promotional examination to induce the Fire Marshal to give high marks on efficiency. Memoranda showing the names of politicians thus seeking to influence efficiency marks for their constituents and friends show that they range from ward committeemen to United States senators. Efficiency markings under such conditions are so farcical as to render further discussion unnecessary.

### *Readjustment of Fire Marshal's Duties:*

To the end that a proper and sufficient business procedure be established and the Department placed upon such a basis as will preclude the recurrence of conditions and transactions such as are set forth in this report, it is suggested:

First: That proper action be taken at once to relieve the Fire Marshal from responsibility for the business detail incident to the administration of the Department, and that his duties be confined to supervising the actual fire-fighting forces, maintaining discipline, selecting equipment, etc. Under the existing

code, he is made solely responsible for the business administration and is relieved from actual fire duty, "except when in his opinion his presence at fires is necessary." It is suggested that this be changed so that the actual operation of the Department as a big fire-fighting machine shall receive his entire attention.

Second: That the duties of the Secretary of the Department be increased so as to comprehend all matters pertaining to the business administration, including the requisitioning of material and supplies, responsibility for deliveries thereof, keeping of all books and records, responsibility for buildings and equipment, etc., etc. Heretofore, the Secretary of the Department has been charged with but few responsibilities and has had very little with which to occupy his time. A man of competent business ability should be secured as Secretary of the Department.

Third: That the office of Assistant Secretary of the Department be changed to Secretary to the Fire Marshal.

Fourth: That if the auditing of vouchers be continued as part of the departmental work, it be done by regular civil-service clerks instead of detailed officers.

That in view of the waste of money by reason of improper auditing of bills, as disclosed in connection with the investigation of coal purchases, the auditing of vouchers by detailed firemen be permanently discontinued, and that all such work be done by a competent auditor, either in the department or in the Comptroller's office.

## PART II.

## PURCHASES OF COAL.

Inquiry into purchases of coal by the Fire Department has led to the discovery that the methods followed in these purchases have been extremely wasteful. The business of supplying the department's needs for coal has been awarded without real competition, under advertisements and contracts containing loose specifications; deliveries have not been reweighed nor tested as to quality; western coal has been substituted for higher-priced eastern coal; invoices have not been checked adequately; payments have been made for coal not delivered; and there have been other irregularities resulting in losses to the City. Investigation of these methods and practices, as inherited and modified in the Department in recent years, has been especially thorough in reference to their results in 1908 and 1909. The main facts found appear in detail under the following headings:

1. Five uses for coal in the Fire Department.
2. Annual expenditures over \$90,000.
3. Loose specifications in advertisements and contracts.
4. Restricted bidding.
5. Lack of testing and inspection.
6. Substitution: Indiana for West Virginia coals.
7. No systematic check on contractor's weights.
8. Payments for coal not delivered.
9. Inadequate auditing of invoices.
10. Over-charges on deliveries to fireboats at contractor's Dock.
11. Coal for fireboats in hands of builders.
12. Over-stocking, deterioration and transfers.
13. Anthracite; time of purchase.

*Five Uses for Coal in the Fire Department:*

There are five principal uses for coal in the Fire Department, depending on variations in equipment and in needs. First, bituminous steam coal is used continuously by the four engine

companies operating fireboats. Second, it is used at fires, under the boilers of the ordinary wheeled fire engines. Third, anthracite coal is used the year round, day and night, in the stationary water heaters by means of which steam is kept up in the boilers of the fire engines when in the engine houses. Fourth, some anthracite and some bituminous are used in the stoves and heating plants at the various houses occupied by the 117 engine companies and 34 hook-and-ladder companies. Fifth, some bituminous for smithing, some bituminous nut, and some coke are used at the Department repair shop.

*Annual Expenditures Over \$90,000:*

The 1910 appropriation for fuel for the Fire Department is \$99,816.40. Of that sum, \$98,316.40 is for coal. This is shown by the estimate used in preparing the budget. This estimate, on file with the Finance Committee of the City Council, was prepared by the Comptroller's Department chiefly on the basis of the Fire Department's expenditures for coal in the last two years. It shows that this Department expended for fuel from January 1 to October 31, 1909, \$80,158.45, and in the year 1908 \$90,653.36. It shows that during 1908 \$33,239.13 was expended for operating engines, and \$57,414.43 for heating houses and keeping up steam in the engines while in the houses. It gives the estimated annual expenditure by the Department, according to the kinds of coal, as follows: \$58,079.00 for anthracite; \$31,700.00 for "high-grade steam" and "smokeless"; \$7,344.00 for "soft" coal; and \$1,193.40 for bituminous nut, smithing coal, and coke.

*Loose Specifications in Advertisements and Contracts:*

The only specifications available for coal dealers desiring to bid for city business in this Department have been those contained in the Fire Marshal's advertisements for bids and in the provisions of past contracts let by him. Both the advertisements and the contracts have been crude and unbusiness-like; for example, they have contained no provision as to the size of the bituminous coals for which they called. This is an elementary defect.

The advertisements, published in the official notices of the City, have been run in substantially the same form for many

years. They have been brief statements on the sorts of coal required. Their estimates of the amounts have been loose. Their descriptions of the quality of coal called for have been meagre, and in some instances misleading. For example, they have called for "bituminous—West Virginia splint, or equal." Splint coal from West Virginia keeps exceptionally well in stock, ignites quickly and burns with a long flame. On account of its low percentages of sulphur and ash, it does not clinker and clog grates. Consequently, for the uses peculiar to fire engines, West Virginia splint, according to some coal experts, has no equal.

The contract examined particularly was that let August 1, 1909. The specifications it contains are, in the main, those of previous years.

The advertisements contained no provision requiring bidders to guarantee the minimum heat units and the maximum ash per pound in the coal they offered, nor to guarantee that it would be from a given mining district, nor even to guarantee its evaporative power. Thus, there was lacking provision for comparing the bids by means of a common denominator, like net British thermal units for one cent.

#### *Restricted Bidding:*

The number of bidders for the contracts for supplying the Fire Department coal has been small. It has diminished since 1905. The Fire Marshal explained the limited bidding on the ground, first, that most coal dealers did not seek city business because they did not want to wait for their pay; and, second, that "there was no use fighting the combine." No doubt, community of interests among dominant members of the coal trade in this city has affected bidding for Fire Department contracts in recent years.

The form of competition without its substance was especially conspicuous in the last two years. In July, 1908, there were only two bidders—James P. Connery and the City Fuel Company. Since April, 1908, the Miami Coal Company, of which James P. Connery is Secretary, has been a constituent part of the City Fuel Company. The stationery on which these two bids were submitted shows that the yards of James P. Connery, coal dealer, were at the same address as four of the yards of the City Fuel Company. On three of the eight sorts of coal



bid upon in the Fire Department bids of 1908, Mr. Connery was a few cents lower than the City Fuel Company; on the others the prices bid were the same.

In July, 1909, James P. Connery bid against the Eureka Coal and Dock Company, whose president, George F. Getz, is a vice-president of the City Fuel Company, and against the Edgewater Coal Company, another affiliated corporation of the City Fuel Company's. Again Mr. Connery was the low bidder. He was the only one to submit a price on bituminous coal for the fireboats. The Department contract was awarded to him.

*Lack of Testing and Inspection:*

There has been practically no checking on the quality of coal delivered to the Fire Department. No tests—British thermal unit tests or evaporation tests—have been provided for in the contracts. None was made prior to March 10, 1910, when the Fire Marshal had some samples of coal taken and tested by a testing and engineering company. Moreover, no bills of lading showing the mining point at which shipments originated have been required or supplied under the contracts. They might well have been required on the car-lot deliveries to two of the fireboat companies. The provision of the contracts concerning quality of coal delivered simply says:

All of said coal shall be free from dirt, slate, screenings and other foreign substances, and shall be of the best quality of its kind, and must in every respect and particular be satisfactory to the Fire Marshal of the City of Chicago.

As to the quality of deliveries, the Fire Marshal has relied on the visual inspection and reports of the officers and men of the department companies receiving the coal. At the Commission's hearings, the Fire Marshal blamed the men for having neglected to make complaint to him. However, the Fire Marshal had not furnished any information to the fire companies concerning the contract requirements on coal prior to February, 1910, when he introduced a system of sending copies of the advertisements to them.

*Substitution: Indiana for West Virginia Coals:*

Indiana and Illinois coals commonly were supplied in 1908 and 1909 under the contracts calling for "West Virginia splint,

or equal." This is shown in part by the delivery tickets for September, October, November and December, 1909. Most of these tickets describe the deliveries merely as "soft coal," and contain no car initials or numbers. However, some give more detailed descriptions. For example, a City Fuel Company ticket of September 3 shows that there was delivered to Engine Company No. 60, 334 East Fifty-fifth street, a load of "Illinois Lump." Tickets of the same coal company show that on October 5 and December 21, respectively, there were delivered to a supply driver of Engine Company No. 55, Sheffield avenue, near Diversey boulevard, and to Engine Company No. 83, 1111 South place, loads of "Rel. Lp." This is an abbreviation for "Reliance Lump," the trade name of coal from the Peabody-Alwart Mining Company's mine in Sullivan County, Indiana. Tickets of the Ohio Fuel Company for December 1 show that there were delivered to Engine Company No. 46, Ninety-third street and South Chicago avenue, four loads of "Indiana coal."

Samples of the soft coal at two engine houses selected at random were taken for the Commission; one on November 11 last, at the station of Engine Company No. 51, Englewood, the other on November 12, at Engine Company No. 108, in Jefferson Park. Analyses of these samples by the Gulick-Henderson Company, inspecting engineers and chemists, indicated that the Englewood sample was coal from the Hocking Valley District of Ohio, and that the Jefferson Park sample was Indiana coal. The latter contained 2.55 per cent. sulphur, 11.31 per cent. ash, and 12357 British thermal units per pound dry, which corresponds closely to the analysis of Miami mine-run from Vigo County, Indiana. West Virginia splint, according to typical analyses quoted in official documents and in trade literature, contains only .7 per cent. sulphur, only 4.98 per cent. ash, and 14362 British thermal units dry; that is, over 2000 British thermal units more than the Jefferson Park sample. This sample was taken from a pile made up, according to station records and statements by company officers, of deliveries of 1909 and the first quarter of 1908.

The bituminous coal at nearly all of the engine houses was examined between January 1 and 15 last by an inspector for the Commission, a former coal miner and operator. Splint coal is

easy to identify, on account of its peculiar structure. At thirty-nine of these stations the Commission's inspector found mine-run coal of Illinois and Indiana grades. Station records showed that it had been delivered in 1908 and 1909, in the periods of contracts of the Miami Coal Company and James P. Connery. At two of the stations the inspector found splint coal of 1904 and 1907 delivery. This was in excellent condition, and thereby in contrast with the Illinois and Indiana coal, which does not keep so well in stock as the splint.

Concerning "high-grade steam, or smokeless, for fireboats," much of that actually delivered came from Indiana. This was demonstrated by tracing wagon deliveries for the "Medill" and "Swenie" at Engine Company No. 41. City Fuel Company tickets covering certain deliveries to this station in September, October, November and December, 1909, were exceptional in that they contained initials and numbers of railroad cars from which the wagons had been loaded. Investigators for the Commission traced these cars to the mines. C. & E. I. car No. 75445, designated on ten of these tickets for deliveries on September 7, 1909, came from a mine in Indiana; likewise Southern Indiana car No. 2504, named on five tickets of October 16, came from the St. Clair mine in Sullivan County, Indiana. So it was with others.

Coal on hand for the fireboat "Illinois" at the dock of Engine Company No. 58 in South Chicago, was examined by the inspector for the Commission on December 31, 1909. It was found to be Illinois or Indiana mine-run. At the station of Engine Company No. 37, the downtown fireboat company operating the "Stewart," the engineer stated that a considerable part of the coal received had been of poor quality.

In view of the above data, it is probable that one-half of the coals supplied to the Fire Department in 1908 and 1909 as "West Virginia splint, or equal," and as "high-grade steam or smokeless," came from Northern Indiana. The Commission's inspector found Indiana or Illinois coal at one-third of the engine-company stations. A conservative basis for calculating waste is found in the estimate that one-third of the supplies of coal for both fire engines and fireboats was from Indiana or

Illinois, one-third from Ohio, and one-third from Pennsylvania or West Virginia.

For "high-grade steam or smokeless," the contract price paid from August to December last was \$5 per ton, delivered. The average of top market prices on the Indiana coal such as was delivered to Engine Company No. 41 for the fireboats "Medill" and "Swenie" was \$2.75, the price paid during the same period by the Public Works Department for "Miami lump or nut" for the Chicago Avenue Water-Pumping Station. Thus, the excess profit on these deliveries was the difference between \$5 and \$2.75, or \$2.25 per ton. Even if Pocahontas, the best grade of "smokeless," had been supplied, the contract price of \$5 would have been about \$1 excessive. Moreover, if West Virginia splint had been supplied as "high-grade steam" to the fireboats at the contract price of "splint or equal" for the ordinary engine companies, namely \$3.60 delivered, the \$5 price would have been \$1.40 excessive. This contract price of \$3.60 on "splint or equal," like the corresponding prices of \$3.62 in the contracts of 1908-1909 and \$3.35 in 1907-1908, was too low to yield a profit on actual deliveries of splint lump from West Virginia.

It is reasonable to assume that in supplying western for eastern coal the contractors gained and the City lost at least the differences in freight rates to Chicago from those fields. The rate on coal from West Virginia is \$1.90 per ton; from northern Indiana 80 cents per ton; the difference, \$1.10. The amount of "West Virginia splint, or equal" purchased by the Fire Department in 1908 and 1909 was 8,366.8 tons; one-third of this is 2,788.93 tons, which, multiplied by \$1.10, equals \$3,067.82, the City's estimated loss on Indiana coal supplied as equal to West Virginia splint. The rate to Chicago on Hocking Valley (Ohio) coal is \$1.65 per ton, or 25 cents less than that on West Virginia splint. Thus, on the estimated supply of Hocking in lieu of splint, the loss was 2,788.93 times 25 cents, or \$697.23, making the total estimated loss on substitution for splint \$3,765.05.

The freight rate on "smokeless" from West Virginia is \$2.05 per ton, or \$1.25 more than on coal from northern Indiana. The total of "smokeless" or "high-grade steam" paid for in

1908 and 1909 was 8,644.66 tons. One-third of this, 2,881.55 tons, at \$1.25, equals \$3,601.94, the City's estimated loss on Indiana coal supplied to the fireboats as "smokeless." The difference between the West Virginia "smokeless" and Hocking freight rates is 40 cents; 2,881.55 multiplied by 40 cents equals \$1,152.62, the City's estimated loss on Hocking supplied under contracts for "high-grade steam or smokeless." This makes the total estimated loss on this class of coal \$4,754.56. Thus the aggregate estimated waste from substitution is \$8,519.61.

*No Systematic Check on Contractor's Weights:*

Fire Department coal contracts have contained no express provision as to weight, like that in the Public Works Department contract providing for payments for deliveries "at city weights." There has been no regular checking on weights of coal delivered, either for fireboats or fire engines.

The system of delivery and receipt for Engine Company No. 37, fireboat "Stewart," is especially weak, being open to serious leakage at several points. The station of this company has practically no storage capacity for fuel. Coal for its use is stored in an open pocket or hopper on the dock of the Pittsburg Coal Company, in a yard at the mouth of the river. The fireboat coals at this hopper about once a week. Coal is delivered from the hopper into the hold of the boat by means of a chute, in which there is an unlocked gate easily opened from the water side. The hopper is filled by use of a derrick and a clam-shell bucket, which lifts the coal from the car on a switchtrack. No member of the Fire Department is present when this is done. However, when the hopper appears full, the captain or lieutenant of the engine company signs a ticket presented at the dockyard office of the coal company for the receipt of one or two cars of coal. He does so without knowing whether the hopper was empty when the coal was put in. He accepts the weights given by the coal company on the ticket. They are presumably railroad weights. The coal is not weighed in the dockyard. No bills of lading or other railroad records are offered to him as evidence of correctness of weights. Moreover, subsequent to his receipting for coal in this hopper, there is nothing to prevent the coal company from dipping into it, or to prevent a privately owned boat from coaling at its chute.

Wagon deliveries to the various engine and truck companies have not, as a rule, been reweighed, although the City Fuel Company's tickets accompanying deliveries under James P. Connery's contract, in September, October, November and December, 1909, contained a statement saying: "Please reweigh this load of coal. We will pay City Weigher's fees and accept City weights." The Fire Marshal testified that several years ago officers of the department companies made a practice of reweighing at scales of public schools near their respective stations, but that this was discontinued and the matter of weights left largely to the honesty of the contractor.

This lack of reweighing, besides leaving the City unprotected as to the quantities delivered in relation to the charges therefor, has also left the firemen signing tickets for receipt of coal in the dark as to the accuracy of the amounts given thereon. This fact tends to weaken the natural defenses of the latter against any pressure which might be put upon them to favor a contractor in passing on the quantity or quality of his deliveries. Efforts which might tend toward securing favors for the contractor have appeared. The coal company making most of the deliveries under the Fire Department's contracts for the last two years has distributed among the members of the department printed notices, of which the following is a copy:

PLEASE NOTE.

We have a separate department for the handling and watching of all orders from members of the Police and Fire Departments. We would like very much to have your order for coal, either anthracite or bituminous.

CITY FUEL COMPANY.

*Payments for Coal Not Delivered:*

Examination was made of the records of payment for coal for the Fire Department in comparison with its records of delivery of coal covering the years 1908 and 1909. This examination was quite thorough. It disclosed serious discrepancies between the tons recorded as delivered and the tons recorded as paid for.

The detailed invoices attached to the department duplicates of the receipted vouchers were the point of departure in this branch of the inquiry. There were bills rendered at the end

of each month by the contractor and used by the Chief Clerk of the Department and his assistant in preparing vouchers for the approval of the Fire Marshal and the Comptroller. These invoices, except in a comparatively small number of instances, do not designate the stations to which deliveries were made. They give merely the amounts and dates of deliveries charged to the Department, and also, with several important exceptions, the numbers of the delivery tickets which are signed by the officers of the various stations as receipts for coal. These invoices were checked by your Commission minutely with all records of the receipt of coal available in the Department.

In commercial practice delivery tickets ordinarily are kept by the consumer for at least a year after deliveries. At Fire Department headquarters the tickets on coal deliveries made before September 1, 1909, had been destroyed prior to the middle of December, when application for such records was made on behalf of the Commission. The only tickets provided were those of September, October, November and December. It was therefore necessary to turn to the records kept at the stations of the companies in the Department. These are in books of two kinds for each company, namely a "Record" and a "Journal." The former, in the form of a ledger, contains accounts of supplies received, including a coal account, kept by the captain and the lieutenant. The latter is mainly an account of the movements of the men and of the company, and is kept largely by the men. Occasionally, entries of coal received appear in some of the "Journals," and in a few instances at the ordinary engine houses entries of given dates not appearing in the "Records" were found buried in the "Journals."

A complete transcript of the coal accounts in the "Records" of all the 117 engine companies and 34 hook-and-ladder companies and the department repair shop for the two years from January 1, 1908, to December 31, 1909, was made. For the four engine companies operating fireboats, a complete examination was made also of such coal entries as appeared in the "Journals." Captains and lieutenants of the fireboat companies testified that the coal accounts in their records were accurate and complete. They stated that before sending the duplicate copies of delivery tickets signed by themselves to

headquarters at the City Hall, they entered the amounts received in the "Records." As to the last four months of 1909; those for which delivery tickets were available, this was verified by a comparison of these tickets with the "Records." The officers of the fireboat companies and the Fire Marshal testified that if charges were made for coal for the fireboats and their station records did not show its delivery, they could not account for the charges.

For the fireboats it was comparatively simple to make an accurate check on the coal invoiced and that recorded as delivered. The Miama Coal Company contract of August, 1907, to August, 1908, called for "Pocahontas smokeless for fireboats," and the James P. Connery contracts for 1908-1909 and 1909-1910 called for "high-grade steam or smokeless for fireboats." The Fire Marshal testified that this sort of coal was purchased exclusively for the companies running fireboats. There are only four such companies, namely: No. 37, in the central business district; No. 71, in the North Branch section; No. 41, in the lumber district; and No. 58 in South Chicago. Moreover, the parts of the invoices relating to "smokeless" and "high-grade steam" consist of a small number of large items.

Discrepancies discovered were of three principal varieties: repeated items, raised items, and inserted items; the results, apparently, of double ticketing in succeeding months, over-billing and extra-billing. A case involving all three sorts was disclosed by comparing the invoices of the Miami Coal Company for April and May, 1908, with each other and with the books of the fireboat companies, particularly of Engine Company No. 37, the only one actually receiving "smokeless" at that time. The former invoice contains only one item of "smokeless," namely, 232,200 pounds charged as delivered April 24, under ticket No. 4,847. The latter invoice contains an item of the same amount, 232,200 pounds of "smokeless," charged as delivered on the same ticket, No. 4,847, on May 25. The station "Record" and "Journal" show that this amount was recorded as received only once, on April 24. The captain of the company testified that it was receipted for by him only once. All of the recorded receipts of soft coal by all the other companies during these months are accounted for under the



head of "bituminous" on the invoices. The only item of "smokeless" received in May, according to the "Record" and "Journal" of Company No. 37, was 227,200 pounds on the 29th. This item appears on the May invoice opposite the date of the 29th and ticket No. 5,523, and in the "smokeless" column immediately under the item of 232,200 pounds. Then, directly under it, opposite the date of May 30, with no ticket number given, is a third entry and charge for 459,400 pounds of "smokeless." There is no record in the Department that this was ever received. Moreover, it happens that this third item of 459,400 pounds is the exact sum of the two preceding items—232,200 and 227,200. The three items are footed together on the invoice to form its grand total of "smokeless" charged for in May, namely, 918,800 pounds.

The receipted vouchers for April and May show that their respective total charges for "smokeless" were paid. Thus the 232,200 pounds shown to be delivered only once, April 24, were paid for three times; on the charge of that date, on the repeated charge of May 25, and on the charge of May 29 for 459,400 pounds, which included a second repetition of it. Moreover, the 227,200 pounds shown to have been delivered only once, May 25, was paid for twice, namely on the charge of that date and on the charge of May 29 for 459,200 pounds, which included it also. Thus, for these two months the amount of "smokeless" paid for but apparently not delivered was 691,600 pounds, or 345.8 tons, which, at \$4 per ton, the contract price, resulted in a loss of \$1,383.20.

Thirteen items of "high-grade steam" coal, aggregating 103 tons, charged on the August, 1909, invoice opposite the date of the 31st, were repeated, in the same order, on the invoices of the next month. They appeared on the September invoice opposite the same ticket numbers given in the August invoice in two instances, and opposite ticket numbers only slightly different in the other instances. On the September invoice, the amounts charged appeared opposite the dates of the 3d, 6th and 7th, which were the dates of their delivery to Fireboat Companies Nos. 71, 41 and 37. The August invoice was not vouchered until September 13. Details of this duplication appear in the following table:

# FIRE DEPARTMENT

39

"HIGH-GRADE STEAM" COAL CHARGES ON AUGUST, 1900, INVOICE REPEATED ON SEPTEMBER, 1900, INVOICE.

Items on Both Invoices in Same Order (Lbs.).	Ticket Nos. on August Invoice.	Ticket Nos. on September Invoice.	Nos. of September Tickets on File in Fire Department.	Dates of Items on August Invoice.	Dates of Items on September Invoice and Tickets.	Dates of Receipt on Station Records.	Fireboat Companies Receiving.
40,000	88328	88328	88328	Aug. 31	Sept. 3	Sept. 3	No. 71 "Chicago"
22,500	88340	88340	88340	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
3,500	40106	40106	*40106	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
9,000	40084	40404	*40404	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
8,800	40089	40104	*40104	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
8,200	40101	40101	*40101	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
9,150	40091	40091	*40091	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
9,300	40083	40083	*40083	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
7,950	40070	40070	*40070	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
9,200	40071	40071	*40071	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
8,450	40066	40066	*40066	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
8,850	40054	40054	*40054	Aug. 31	Sept. 7	Sept. 7	No. 41 "Medill" & "Svenle"
62,200	14081	14089	†14089	Aug. 31	Sept. 6	Sept. 6	No. 37 "Stewart"
Total: 307,100 lbs. (108.55 tons)							

\* "q" changed from "o".

† Printed number torn out; this written in ink.

All August delivery tickets of the Fire Department were missing when called for in December, despite the fact that the 1909-1910 contract of James P. Connery had become effective August 1. The captain assigned as Chief Clerk of the Department Headquarters testified that they probably had been destroyed in his absence, with those of the previous year. His assistant testified that they probably had been sent to the Comptroller's office. Clerks from that office testified that they had received no delivery tickets from the Fire Department prior to October.

The delivery tickets for the above thirteen duplicated items were among the September tickets on file in the City Hall. Twelve of them were City Fuel Company tickets, one was a Pittsburg Fuel Company ticket. These tickets or their duplicates apparently had been used for checking the thirteen items charged under date of the 31st at the end of the August invoice. They bear on their faces evidences of manipulation. Two of them—those for Fireboat Company No. 71—contain in stamped form the numbers used in both August and September invoices; ten of them—those for Fireboat Company No. 41—contain pencil or carbon numbers which have been changed from their original condition. The second figure in each original was a "0." It had been changed to "6." The original numbers were the same as those appearing on the August invoice. The numbers with the "0's" changed to "6's" were, with two exceptions, the same as those appearing on the September invoice. The thirteenth ticket, for Fireboat Company No. 37, was mutilated. Its original stamped number had been torn off. It bore the number 14,089 written in the corner in ink. This was the number on the September invoice. The corresponding number on the August invoice was the same except for its last figure, which was a "1" instead of a "9."

Officers of the fireboats companies concerned identified their signatures on these tickets and testified that they had not changed the numbers or seen them changed. The Chief Clerk and Assistant Chief Clerk of the Department testified likewise. The officers of the fireboat companies testified also that they had received the respective amounts of coal involved only once. This was verified by entries in their records. Moreover, these

amounts were not recorded as deceived anywhere in the department on August 31. The twelve duplicated items for Companies Nos. 71 and 41, aggregating 72 tons, were invoiced at \$5 per ton. The only duplicated item of Company No. 37, amounting to 31 tons, was invoiced at \$4.50 per ton. Thus the City's loss on these thirteen duplications was \$499.50.

Among the raised items discovered, one of note was that in the last charge in a list of 34 undated charges for "high-grade steam" on the Connery invoice of July, 1909. This charge was for 292,000 pounds. The other charges for "high-grade steam," as well as two charges for "smokeless," checked exactly with the amounts received at the various fireboat stations according to their "Records," and cover all those receipts except one. This one is an entry in the books of Company No. 41, where the "Medill" had joined the "Swenie" the month previous. Both the "Journal" and the "Records" of this company show a delivery to the "Medill" on July 3 entered in tons. They record a delivery of "46 tons." The captain recalled that this had come on a scow. Forty-six tons is 92,000 pounds, or exactly 100 tons less than the 292,000 pounds invoiced.

Of items inserted in invoices, charging for deliveries of fireboat coal of which there is no record whatever of receipt in the Department, some conspicuous cases are the following: Under the Miami Coal Company contract for "smokeless" in 1908, 200,000 pounds January 31, 688,000 pounds March 6, and 794,000 pounds June 19; under the Connery contracts, on the invoice of September, 1908, three items of 10,000 pounds each, and items of 12,000, 12,500, 13,000, 16,000 and 24,000 pounds. No detailed invoices, but merely recapitulations of total charges for the various kinds of coal, were submitted by James P. Connery for August, October, November and December, 1908. Discrepancies were discovered between these recapitulations and the totals of receipts shown on the books of the fireboat companies. The net differences were: for August, on "high-grade steam," 113,700 pounds, and on "smokeless" 58,000 pounds; for October, 7,550 pounds and 21,000 pounds; for November, 106,800 pounds and 196,800 pounds; and for December, on "smokeless," 14,400 pounds.

The total amount of "smokeless" and "high-grade steam" coal for fireboats invoiced in 1908 and 1909 was 1,751 tons more than the total amount received, according to "Records" and "Journals" of the fireboat companies and the delivery tickets still on file. For this amount the City paid \$7,299.40, as appears in the following table:

# FIRE DEPARTMENT

43

## CONDENSED RESULTS OF CHECK ON "SMOKELESS" AND "HIGH-GRADE STEAM" COAL FOR FIREBOATS.

Contract Period.	Contractor.	No. of Lbs. Invoiced.	Received as per Station Books.	No Record of Receiving.	Contract Price per Ton.	Value.
January 1	Miami Coal Company	3790900	1417300	2373900 lbs.—		
July 31, 1908				1186 tons, at.....	\$ 4.00	\$ 4,744.00
August 1, 1908	James F. Connery	9621620	7006620	931700 lbs.—		
July 31, 1909				462 tons at.....	4.45	2,055.90
August 1	James F. Connery	3976800	3763700	207100 lbs.—		
December 31, 1909				103 tons:		
				72 tons at.....	5.00	360.00
				31 tons at.....	4.50	139.50
	Totals.....	17239320	12193620	3512400 (1751 tons).....		\$ 7,299.40

The "West Virginia splint, or equal" delivered to ordinary engine and truck companies, and in some months to fireboats, was invoiced simply as "bituminous." The anthracite of various sizes for all the companies was invoiced as such. These invoices when checked against the coal accounts in the "Records" for all the stations and the "Journals" for a few of them, showed the following total excess in amounts charged and paid for over amounts received: Bituminous, 1,665 tons, value \$5,770.33; anthracite, 3,303 tons, value \$23,809.50. The "Journals" were checked only in reference to the anthracite discrepancies at ten stations in the first seven months of 1908. The anthracite charges during these months were the only items invoiced during the two years (except some on fireboat coal in 1909) which designated the companies to which the deliveries were charged. Items not appearing in the "Records" were found in the "Journals" at the ten stations referred to. However, in view of the facts that subsequently the items were not invoiced by stations, and that all items on the fireboat "Journals" were found in their "Records," this does not invalidate the partial check made on the bituminous and anthracite. Still it should be stated that if time had permitted a thorough search for stray entries on coal in the company "Journals" such an additional check, no doubt, would have required some reductions in these shortages on bituminous and anthracite.

The results of the complete check on "smokeless" and "high-grade steam," and the approximately complete check on bituminous and anthracite appear in the following table:

## RECAPITULATION OF DISCREPANCIES COVERING "SMOKELESS" AND "HIGH-GRADE STEAM", BITUMINOUS AND ANTHRACITE.

Contract Period.	Contractor.	Kind of Coal.	Amount.	Contract Price.	Total.	Grand Total.
Jan. 1, 1909- July 31, 1909	Miami Coal Co.	"Smokeless" and "High-Grade Steam"	1,186 tons at .....	\$ 4.00	\$ 4,744.00	.....
	Miami Coal Co.	Bituminous .....	951 tons at .....	3.35	3,156.85	.....
	Peabody Coal Co.	Anthracite .....	228 tons at .....	7.00	1,592.00	\$ 9,511.85
Aug. 1, 1909- July 31, 1909	Jas. P. Connery	"Smokeless" and "High-Grade Steam"	462 tons at .....	4.45	\$ 2,055.90	.....
	Jas. P. Connery	Bituminous .....	704 tons at .....	3.62	2,548.48	.....
	Jas. P. Connery	Anthracite .....	2,754 tons at .....	7.25	19,966.50	.....
Aug. 1, 1909- Dec. 31, 1909	Jas. P. Connery	"Smokeless" and "High-Grade Steam"	103 tons: 72 at \$5.00 .....	360.00	.....	24,570.88
	Jas. P. Connery	Bituminous .....	31 at 4.50 .....	139.50	\$ 499.50	.....
	Jas. P. Connery	Anthracite .....	10 tons at .....	3.60	36.00	.....
	Jas. P. Connery	Bituminous .....	323 tons at .....	7.00	2,261.00	.....
	Jas. P. Connery	Anthracite .....	.....	.....	.....	2,790.90
	Totals:	.....	.....	.....	.....	.....
		"Smokeless" and "High-Grade Steam"	1,751 tons .....	.....	\$ 7,299.40	.....
		Bituminous .....	1,665 tons .....	.....	5,770.33	.....
		Anthracite .....	3,308 tons .....	.....	23,509.50	\$ 36,579.23
			6,719 tons			

"In figuring value on shorthable minimum contract prices were used, except in case of 103 tons of "high-grade steam", in August, 1909, in which prices actually charged on invoices were used."



*Inadequate Auditing of Invoices:*

The system of auditing invoices for coal followed in the Fire Department has contained many loopholes, rendering it inadequate for the protection of the City. Under it, double-billing, over-billing and extra-billing might readily have occurred without detection. Delivery tickets, constituting receipts for coal, have been signed in duplicate by the officers of the various Fire Department companies receiving coal. The officers have returned one copy of each ticket to the representative of the contractor delivering the coal and have sent the other copy to the Department headquarters on the day after the delivery in some instances, and in others at the end of the month. The Chief Clerk and Bookkeeper of the Department and the Assistant Chief Clerk in checking the monthly invoices and preparing the vouchers have made no use of the tickets from the fire-company officers. The Chief Clerk testified that he threw them into the waste basket. He stated that the tickets used by him were those submitted by the contractor. He said that changed or mutilated tickets like those in the double-ticketing of August-September, 1909, would not arouse his suspicions, and that he had taken it for granted that every man was honest in his dealings. Moreover, the Chief Clerk and his Assistant have not compared the invoices of one month with those of the next, or paid attention to ticket numbers or lack of ticket numbers on invoices.

The Fire Department's audit of coal invoices presented was the main reliance of the Department of Finance in passing on the vouchers covering those invoices until October, 1909. Up to that time, the Comptroller's office received for checking on the vouchers only the recapitulations of the invoices. Each month since then this office has received from the Fire Department the detailed invoice for coal and compared it with that of the preceding month. Also, since then the Comptroller's office has received a set of delivery tickets. The Assistant Chief Clerk of this office and an audit clerk (clerks whose initials appear on vouchers covering duplicate charges for coal) testified that they had been under the impression that these delivery tickets were those sent to the Fire Department by the station officers. The latter clerk testified that the Comptroller's of-

fice was under-manned with voucher-clerks, and that, therefore, he constantly took chances in passing on vouchers from the various departments.

*Over-Charges on Deliveries to the Fireboats at Contractor's Dock:*

The contract of August 1, 1909, expressly provided that when "high-grade steam coal" was taken by fireboats at the contractor's dock, the price should be \$4.50 instead of \$5 per ton, the price on deliveries involving cartage. Since about August 1, Engine Company No. 71, stationed at the Weed Street bridge in the North Branch of the river and operating by turns the "Chicago" and the "Illinois," has secured its deliveries of coal, excepting in a few instances, from a dock of the City Fuel Company at North avenue. This was testified to by the engine company's officers. It is shown for September, October, November and December by the delivery tickets. The invoices contain 19 charges at \$5 per ton for dock deliveries to this fireboat company, aggregating 530.75 tons.

*Coal for Fireboats in Hands of Builders:*

In addition to the discrepancies on "high-grade steam" coal described in the foregoing section, invoices of January to June, inclusive, 1909, show charges amounting to 791 tons, of which there is no record of receipt in the Fire Department. These items were billed as for the new fireboats "Stewart" and "Medill," which arrived in Chicago from Manitowoc, Wis., respectively, in November and December, 1908. Thereafter, until June 19, 1909, they were in the hands of the Manitowoc Dry Dock Company undergoing additional construction and were used only intermittently by the Fire Department. Department officials say that a representative of this company signed delivery tickets covering the coal charges in question. The company, in a letter to a representative of the Commission, says it has "no record of coal supplied to these boats."

The Fire Marshal, on February 3, 1909, notified the Manitowoc Dry Dock Company that coal then being used on the fireboats would be charged to its account. Again, on March 13, 1910, by letter, he asked the company if it was willing to pay for coal

consumed by these boats up to January 8, 1910, the date of their final acceptance. The company states that no coal was delivered on its orders to the boats while in Chicago, and denies liability for any such deliveries. On January 11, 1910, the Comptroller, on the verbal recommendation of the Fire Marshal, paid only \$8,000 on a voucher for \$14,300 formally approved by the latter for final payment to the boat-building company for the boats. The Fire Marshal has no itemized statement covering the \$6,300 consequently held out. He holds that at least 544 of the 791 tons of coal in the charges in question should be paid for by the boat contractor. Meanwhile, the coal contractor has received payment in full on the vouchers covering these charges.

*Over-Stocking Deterioration and Transfers:*

More than 4,000 tons of bituminous coal, billed at the contract price for "West Virginia splint, or equal," was put in storage at the stations of the Fire Department during the first quarter of 1908, under the Miami Coal Company contract. This was much more than was supplied in the corresponding quarter of 1906, of 1907 and of 1909. It swelled the total for the contract year 1907-1908 to an amount greatly in excess of the totals for the contract years 1905-1906, 1906-1907, 1908-1909. The reason given for heavily stocking the Department at this time was talk of an impending suspension of operations at the mines. This was an insufficient reason for such a large over-supply. According to reliable coal dealers and a reliable trade journal, the talk of suspension did not affect the mining fields of West Virginia, though it did affect those of Pennsylvania, Ohio, Indiana and Illinois. From the same sources and a leading financial journal, it was learned that this talk and a suspension of a month to six weeks in these fields were promoted with a view to ridding the market of a surplus supply of coal accumulated that winter, because of an industrial depression following the panic of the preceding autumn. The Fire Marshal was led into over-stocking the Fire Department, in part, on the advice of the coal contractor concerned.

No estimate of the needs of the Department for coal to cover the possible period of the talked-of suspension was made by the Fire Marshal. The Department accepted all the coal which the contractor would place in the basements and sheds,

and, in several notable instances, the uncovered yards, of the department companies. The over-supply, though most general in the Fourth Battalion, in the west and northwest sections of the City, was not confined to any section. At many stations coal from this over-supply in the first quarter of 1908 was still on hand and found by the inspector for the Commission in January, 1910, and later. For example, there were 125 tons in the hand-ball court of Engine Company No. 36, 2344 West 25th street, on January 14. This was covered with drifted snow and could not be examined. On March 2 it was inspected. Like the 1908 coal, found at many other stations, it was in part badly slacked. This deterioration was such as takes places with Indiana and Illinois mine-run coal when subjected to weathering.

Similar deterioration in two such outdoor storage piles led to their transfer from Fire Department yards to Public Works Department pumping stations, seven and twelve months, respectively, after their original purchase in February, 1908. A pile of 322.11 tons was transferred from the yard of Engine Company No. 98 to the Chicago Avenue pumping station, which it adjoins, in September, 1908. The City Engineer objected to this transfer, saying that it would mean loss to the Public Works Department, on the score that it would cost this Department the Fire Department price on it, \$3.35, plus cartage, and would give the former Department no more results than it was getting from coal for which it was paying \$2.40, to the Miami Coal Company, the same contractor from whom the Fire Department had bought the coal. For cartage on this transfer the City paid, on a Business Agent's voucher, \$67. Records of the Public Works Department show that it avoided paying for the coal transferred at Chicago avenue.

The other transfer in question took place at Fourteenth street. Here, in February, 1909, thirteen wagon loads of coal, aggregating 75.737 tons, were transferred from the yard of Engine company No. 104, 14th street and Michigan avenue, to the 14th Street pumping station. The transfer was made in City Fuel Company's wagons, and no charge or payment for this cartage was made. At the pumping station the records of the receipt of this transfer of coal were merged in those of the ordinary receipts. At the end of the month charges for the

same were merged in the total charges invoiced for the month's deliveries to this pumping station. Examination of the vouchers involved shows that for this 75.737 tons the Miami Coal Company appears to have been paid twice by the City—first, through the Fire Department, at \$3.35 per ton, and, second, through the Public Works Department, at \$2.60 per ton. The second payment amounts to \$196.91.

*Anthracite—Time of Purchase:*

The time of letting the Fire Department contracts in past years, namely July, while well adjusted to trade conditions so far as bituminous coal was concerned, was not the time for securing lowest prices on anthracite. Annually, on April 1, the circular prices on anthracite, namely the September to March prices, are reduced 50 cents per ton for April deliveries. For deliveries in each succeeding month—May, June, July, August and September—prices advance 10 cents a ton. Anthracite does not deteriorate materially, either in heat value or size, through storage. Many of the 115 engine companies which use it have, and the others could easily be provided with, storage capacity for their year's supply.

The aggregate amount of anthracite purchased by the Department from August 1, 1907, to December 31, 1909, according to the invoices, was 18,063 tons. This was paid for at September-March prices and higher. If it had been purchased and delivered at April prices, the saving would have been \$9,031.50.

*Responsibility:*

In a general way, the wastes above shown in the purchases of coal are the outgrowth of custom. The underlying responsibility for them rests on a long line of administrations and councils, which have placed upon fire marshals, chosen for their experience in fire-fighting, heavy duties of business management, properly requiring the services of men trained in modern, economical methods of doing business. The responsibility for the continuance of these customs and the business methods of the Fire Department since 1905 necessarily rests upon James Horan, Fire Marshal.

The wastes through approving invoice charges for coal not delivered are the outgrowth of the custom of assigning veteran

captains of fire companies without training in business methods to clerical work at headquarters.

*Recommendations:*

The Commission offers the following recommendations:

1. That the Corporation Counsel take steps to recover for coal invoiced and not delivered.
2. That the pending ordinance providing that the Commissioner of Public Works shall award and execute "all contracts for the use of coal for any department of the City," be passed, and administered with a view to promoting competition for the City business.
3. That the Public Works Department and Fire Department co-operate in having special tests made to determine precisely the sort of coal best suited, as to efficiency and economy, for each of the uses of the latter department; for example, whether coals from Illinois and Indiana fields would be suitable for fire engines at fires; and whether such coal could be used in place of anthracite in station water heaters.
4. That, beginning next year, contracts for the annual supply of anthracite be let in March for April delivery; and that the contracts for bituminous be let in July.
5. That deliveries be inspected by the Fire Department station officers receiving the same; and that regular reports on such inspections and on the practical results obtained in operation with the fuel supplied be required by the Fire Marshal.
6. That deliveries be reweighed by the receiving officers; and that the advisability of locating fireboat stations adjacent to switchtracks and providing such stations with coal bunkers be considered by the Fire Department.
7. That in vouchering invoices delivery-receipts supplied directly by the fire-company officers be used; that each invoice be compared with that of the month preceding.

TABLE ON PURCHASE OF HORSES—1908.

Voucher No.	Dealer.	Date Billed to Fire Department by Dealer.	Date Forwarded to Comptroller by Fire Department.	Date Paid by Comptroller.	Time from Date of Bill to Date of Payment.			
					30 Days or Less.	31 to 60 Days, Inclusive.	61 to 90 Days, Inclusive.	91 Days and Over.
15913	The Fair	January 29	March 23	April 10			\$ 225.00	
15911	Wm. Heber	March 16	March 23	April 15				
16446	John S. Cooper	March 26	April 15	May 25	\$ 250.00			
18097	Ellsworth & McNair	Mar. 13-Apr. 3	May 4	May 16	2,655.00			
17794	Abe Klee & Son	April 9	April 24	June 10			550.00	
20249	Ellsworth & McNair	April 16-21	May 13	June 13	900.00			
20253	John S. Cooper	April 22	May 13	May 25	550.00			
20251	Abe Klee & Son	April 25	May 13	June 10	275.00			
18915	Wm. Hebolt	May 1	May 13	May 15	550.00			
18654	Samuel Cozzens	Apr. 21-May 6	June 4	June 11		795.00		
22701	Ellsworth & McNair	May 7	May 27	June 13		850.00		
22383	Ellsworth & McNair	May 7	May 27	June 13		2,205.00		
26468	Ellsworth & McNair	May 7	May 27	August 20				\$ 525.00
27154	Abe Klee & Son	May 9	August 20	August 31				850.00
22703	Wm. Hebolt	May 14	May 27	June 8	525.00			
21446	Ellsworth & McNair	May 27-29	June 16	July 28		2,835.00		
20700	Wm. Hebolt	May 14-June 1	June 16	June 17	1,075.00			
25233	Ellsworth & McNair	June 9	July 13	July 28		825.00		
27059	Abe Klee & Son	July 6	July 27	August 7		540.00		
26792	Wm. Hebolt	July 8	August 20	August 24		225.00		
27295	C. E. Finnegan	July 23	July 23	July 30	225.00			
27156	Ellsworth & McNair	July 28	August 20	August 20		800.00		
31471	Abe Klee & Son	August 6	September 26	September 28		1,515.00		
23231	Ellsworth & McNair	August 5-26	September 26	October 8		1,840.00		
29568	Abe Klee & Son	September 2-3	October 31	October 8		1,540.00		
30928	Ellsworth & McNair	September 10	October 31	November 11			1,015.00	
32228	Ellsworth & McNair	September 16	October 19	December 8			1,290.00	
31282	Ellsworth & McNair	Sept. 10-16	October 15	December 8			755.00	
32236	John D. Hartford	September 30	October 19	November 4		225.00		
32236	Ellsworth & McNair	Sept. 16-Oct. 1	October 27	Jan. 4, 1909				2,655.00
33786	Ellsworth & McNair	October 1	October 31	Dec. 4, 09-Mar. 25, 09				2,590.00
36789	E. H. Schloeman	October 20	November 20	Dec. 4, 09-Mar. 25, 09		262.50		292.50
34709	Ellsworth & McNair	October 23	November 11	Jan. 4, 09-Mar. 25, 09			795.00	795.00
35187	Abe Klee & Son	Oct. 14-29	November 16	Jan. 4, 09-Mar. 25, 09			1,080.00	1,080.00
38946	Ellsworth & McNair	Nov. 5-Dec. 16	December 28	Nov. 27, 09-Mar. 26, 09	375.00			375.00
41090	Edward I. Well	December 24	December 31	Jan. 4, 09-Mar. 25, 09	2,127.50			2,127.50
42542	Ellsworth & McNair	December 29	January 11	Feb. 20, 1909		200.00		2,120.00
42544	Ellsworth & McNair	December 30	January 11	March 25			3,190.00	
				Totals.....	\$ 5,152.50	\$ 18,847.50	\$ 8,900.00	\$ 13,370.00

TABLE ON PURCHASE OF HORSES—1909.

Voucher No.	Dealer.	Date Billed to Fire Department by Dealer.	Date Forwarded to Comptroller by Fire Department.	Date Paid by Comptroller.	Time from Date of Bill to Date of Payment.		
					30 Days or Less.	31 to 60 Days, Inclusive.	61 to 90 Days, Inclusive, 91 Days and Over.
11579	Ellsworth & McNair	January 7	January 27	March 25			
18015	Ellsworth & McNair	April 8	May 8	June 5	\$ 580.00	\$ 760.00	
20685	Ellsworth & McNair	Apr. 9-21-22	May 18	July 7		2,125.00	
20683	John S. Cooper	Apr. 22-27	May 18	June 9	1,600.00		
29476	John S. Cooper	July 23	August 14	November 1			\$ 1,100.00
27424	John S. Cooper	July 23	August 24	November 1			1,090.00
28743	John S. Cooper	July 23	September 4	November 12			275.00
27426	Wm. Rieboldt	August 3	September 4	Sept. 22-Oct. 26	270.00	270.00	
28745	Ellsworth & McNair	August 6	September 4	October 21		1,625.00	
28741	Wm. Rieboldt	August 13	September 4	Sept. 22-Oct. 26	187.50	137.50	
32049	John S. Cooper	September 10	September 15	Jan. 21, 1910			1,095.00
32402	Ellsworth & McNair	September 14	September 15	November 12	540.00		
32968	Ellsworth & McNair	September 20	October 18	November 11	1,385.00		
37225	Ellsworth & McNair	September 24	October 25	November 11	520.00		
36380	John S. Cooper	October 27	November 29	January 14		575.00	
41200	John S. Cooper	November 2-3	December 15	December 27	2,700.00		
41214-24	Ellsworth & McNair	November 11	Jan. 11, 1910	January 24		265.00	
41202-12	John S. Cooper	November 17	Jan. 8, 1910	March 5			1,615.00
41236	John S. Cooper	November 17	Jan. 11, 1910	Jan. 24, 1910		1,680.00	
41233	John S. Cooper	November 18	Jan. 11, 1910	Mar. 5, 1910			262.50
41232	Ellsworth & McNair	December 14	Jan. 8, 1910	Mar. 5, 1910			262.50
41234-46	John S. Cooper	December 15	Jan. 8, 1910	Jan. 24, 1910	1,905.00	270.00	
				Totals.....	\$ 9,567.50	\$ 7,567.50	\$ 5,640.00





UNIVERSITY OF MICHIGAN



3 9015 06809 2876

ECU-92  
JAN 2 1918  
UNIV. OF MICH.  
LIBRARY

